3.4 Graphs of Sine & Cosine

Name_____ Date _____ Period _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the amplitude of the function and use the language of transformations to desribe how the graph of the function is related to the graph of y = sin x.

1) y = 2 sin x 1) _____

2) y = -4 sin x 2) _____

3) y = 0.73 sin x 3) _____

Find the period of the function and use the language of transformations to describe how the graph of the function is related to the graph of y = cos x.

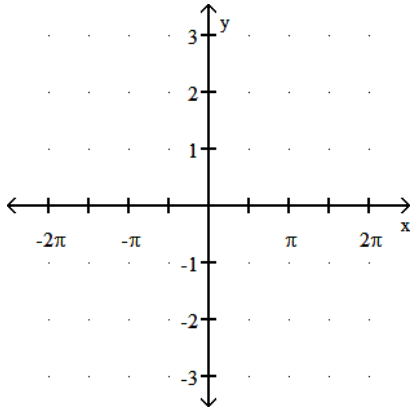
4) y = cos 3x 4) _____

5) y = cos (-7x) 5) _____

6) y = 3 cos 2x 6) _____

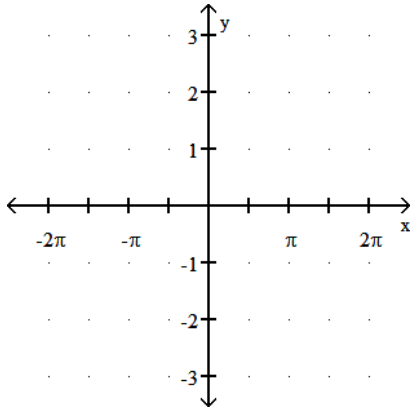
Find the amplitude, period, and frequency of the function and use this information (not your calculator) to sketch a graph of the function.

7) y = 3 sin (x/2) 7) _____



8) y = - 3/2 sin 2x

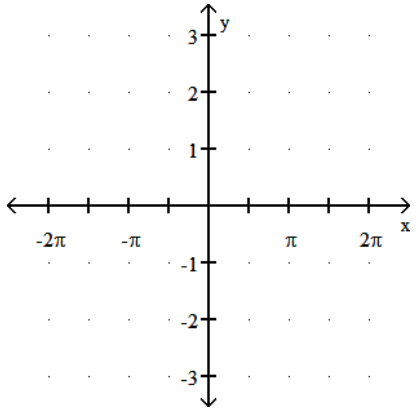
8) _____



Graph one period of the function. Use your understanding of transformations, not your graphing calculators.

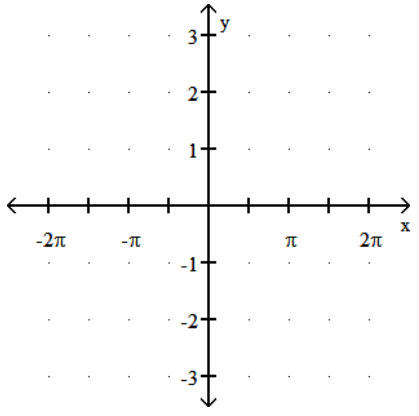
9) y = 2 sin x

9) _____

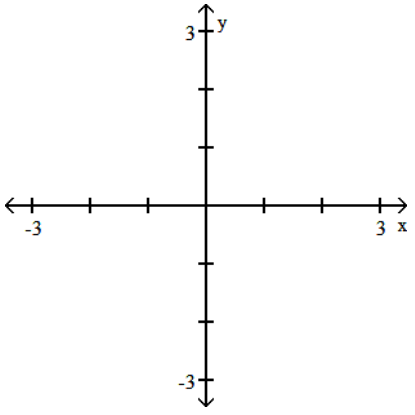


10) y = 3 cos x

10) _____

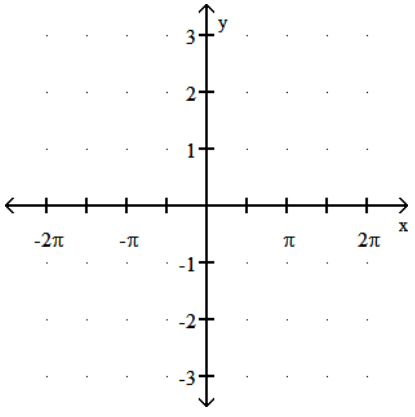


11) $y = -0.5 \sin x$ 11) _____

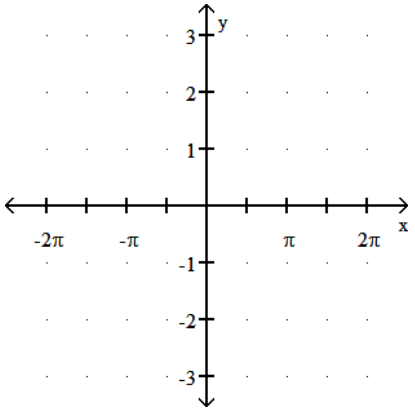


Graph three periods of the function. Use your understanding of transformations, not your graphing calculator.

12) $y = 3 \sin 2x$ 12) _____



13) $y = \frac{1}{2} \cos 3x$ 13) _____



Describe the transformations required to obtain the graph of the function f(x) from the graph of the function g(x).

14) $f(x) = 0.5 \sin 3x$; $g(x) = \sin x$ 14) _____

15) $f(x) = -2/3 \cos(x/3)$; $g(x) = \cos x$ 15) _____

16) $f(x) = 3 \cos \frac{2\pi x}{3}$; $g(x) = \cos x$ 16) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Select the functions that have identical graphs.

17) (i) $y = \cos x$ 17) _____
(ii) $y = -\sin(x - \pi)$
(iii) $y = \cos\left(x - \frac{\pi}{2}\right)$
A) i and ii B) i, ii and iii C) ii and iii D) i and iii

18) (i) $y = \cos x$ 18) _____
(ii) $y = \sin x$
(iii) $y = \sin\left(x + \frac{5\pi}{2}\right)$
A) i and iii B) i, ii and iii C) i and ii D) ii and iii

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Write an equation for a sine curve that has the given amplitude and period, and which passes through the given point.

19) Bonus: Amplitude 3, period π, point (0, 0) 19) _____

20) Bonus: Amplitude 1.5, period $\frac{\pi}{6}$, point (1, 0) 20) _____

Find the amplitute and period of the sinusoid, and (relative to the basic function) the phase shift, and vertical translation.

21) $y = -2 \sin\left(x - \frac{\pi}{4}\right) + 1$ 21) _____

22) $y = 5 \cos\left(3x - \frac{\pi}{6}\right) + 0.5$ 22) _____